Hazard Analysis and Control for Facility Work

Los Alamos National Laboratory
Laboratory Implementation Requirements LIR 402-10-01.8
Effective Date: December 19, 1997 (Revision Date January 8, 2003) Mandatory Document

1.0 Introduction

1 01 Lessons Learned Note: *Click here* for Lessons Learned *that may apply* to the requirements contained in this LIR.

1.1 Background

Hazard analysis and control are integral parts of the Facility Management Work Control Program, as defined in Laboratory Implementation Requirement (LIR) 230-03-01, "Facility Management Work Control." To help ensure safe and efficient operation of Laboratory facilities, the Facility Management Work Control Program is designed to provide uniformity in work control for facility management units (FMUs) throughout Los Alamos National Laboratory (the Laboratory or LANL). This LIR, "Hazard Analysis and Control for Facility Work," describes the process for hazard analysis and control as it relates to the Facility Management Work Control Program.

Ensuring the safety of workers, the public, the environment, and facilities includes the following measures:

- identification and analysis of hazards by authorized persons, qualified persons, and workers;
- identification of controls to mitigate those hazards by authorized persons, qualified persons, and workers;
- ensuring worker involvement in identifying ES&H hazards and appropriate controls;
- review of the hazard analysis by foreman and work provider qualified persons to determine whether all ES&H hazards have been identified and whether the controls are appropriate; and
- application and utilization of controls by foremen/supervisors and workers during the performance of work.

1.2 In This Document

A summary of the process and responsibilities is located in Table 1 below.

TABLE 1

ELEMENTS OF HAZARD ANALYSIS AND CONTROL PROCESS

Process Element	Responsible Person
Identification of known or suspected site hazards and all standard site controls through a walkdown or other effective means.	Originator and/or an authorized person.
Identification and evaluation of any additional controls for site hazards through a walkdown or other effective means.	Qualified person designated by the FM or designee.
Completion of an AHA, which identifies • site hazards and controls provided by the FM or designee, • task hazards, • task controls, • permits, and • training associated with the work to be performed or as required for site hazards.	Work provider qualified person.
Content review of the AHA.	Qualified person designated by the work provider.
Walkdown of the site and/or a prejob briefing for new work and as needed for repetitive work.	Work provider supervisor/foreman and workers.
Address any changes in work scope or conditions and/or any new hazards.	FM or designee and work provider.
Oversight of hazard analysis and control to ensure adequate ES&H performance.	FM or designee and HSR Division.

2.0 Purpose

The purpose of this document is to describe, document, and communicate requirements for hazard analysis and control as they relate to the Facility Management Work Control Program (LIR 230-03-01, “Facility Management Work Control”). These requirements establish the hazard analysis and control process for preparing and conducting work and define the roles and responsibilities of personnel who coordinate and perform hazard analysis and control.

3.0 Scope

The provisions of this document apply to all Laboratory employees and subcontractor personnel who are involved in on-site facility work at the Laboratory, including construction, environmental restoration (ER) and decontamination and decommissioning (D&D).

4.0 Acronyms and Definitions

AHA	Activity hazard analysis
ALARA	As low as reasonably achievable
AR	Administrative requirement (of the Laboratory)
BUS	Business Operations (Division)
CFR	Code of Federal Regulations
D&D	Decontamination and decommissioning
ER	Environmental Restoration (Program)

ES&H	Environment, safety, and health
HSR	Health, Safety, and Radiation Protection (Division)
HSR-3	Integrated Risk Analysis (Group)
HSR-5	Industrial Hygiene and Safety (Group)
ESH-ID	Environment, safety, and health identification process
FWO	Facility and Waste Operations (Division)
FM	Facility manager
FMU	Facility management unit
GET	General employee training
GFCI	Ground fault circuit interrupter
GPR	Ground-penetrating radar
HE	High explosives
LANL	Los Alamos National Laboratory
LIR	Laboratory implementation requirement
PPE	Personal protective equipment
RRES	Risk Reduction and Environmental Stewardship (Division)
RRES-MAQ	Meteorology and Air Quality (Group)
RRES-SWRC	Solid Waste Regulatory Compliance (Group)
RRES-WQH	Water Quality and Hydrology (Group)
RRES-ECOL	Ecology (Group)
RWP	Radiological work permit
SEWP	Special electrical work permit
SOC	Skill of craft
SSHASP	Site-specific health and safety plan
SSS	Support services subcontractor
SWPP	Stormwater plan and permit
TA	Technical area

The following terms are used throughout this document:

Activity hazard analysis—A document or set of documents that includes identification of site hazards and controls, principal work steps, task hazards and controls, and necessary permits and training.

Authorized person—An individual designated by an FM (or designee) to complete the ES&H site hazard and control form (Form 1692, Attachment 2) who has been briefed in Laboratory work control processes, including the hazard analysis and control process, who has practical knowledge of the work activities conducted at the FMU, and who has adequate knowledge of the work site.

ES&H Plan—A plan developed by a construction or demolition contractor in accordance with the health and safety requirements specified in the contract.

Hazard—Any source or situation that has the potential to cause injury or harm to workers, the public, or the environment or damage to or loss of property.

High-consequence lift—The reader is referred to the definition in Administrative Requirement (AR) 13-2.

Originator—An individual who requests work on behalf of the Laboratory.

Qualified person (Level 1)—An individual who has completed training in facility hazard analysis and control approved by HSR Division and who has practical knowledge of the work activities and adequate knowledge of the work site.

Qualified person (Level 2)—An individual who has academic credentials or work experience in a relevant discipline, such as environmental protection, industrial hygiene, industrial safety, or health physics, and who has practical knowledge of the work activities and adequate knowledge of the work site.

Site hazard—Any hazard associated with a specific location, FMU, technical area (TA), building, room, or other location where work is to be performed, including hazardous chemicals within systems that may be exposed during work.

Subcontractor—an individual or legal entity that has entered into an agreement with a contractor for the delivery of goods or services necessary for the contractor's performance of the contract.

Task hazard—Any hazard associated with a discrete activity performed by a work provider.

Walkdown—A physical survey of an area where work is to be performed.

Work provider—A subcontractor who performs facility work at the Laboratory.

Worker—Laboratory employee, affiliate, or visitor, as well as a vendor, or work provider employee, who performs or supervises facility work at the Laboratory.

5.0 Functional Responsibilities

5.1 Originators

Originators shall inform authorized persons of any known site hazards to which a worker could be exposed.

5.2 Facility Managers

FMs or their designees shall

- designate authorized persons to complete Form 1692, the ES&H site hazard and control form (Attachment 1), and ensure that the information on the form is accurate and complete;
- ensure that authorized persons are briefed in Laboratory work control processes, including the hazard analysis and control process;
- designate qualified persons for the FMU, who possess ES&H knowledge relevant to the site hazards identified;
- ensure that when work involves high-loss-potential site hazards (e.g., multiple hazards; radiological controlled areas that require an as low as reasonably achievable (ALARA) review; carcinogens, beryllium, or unknown chemicals; areas where respirator use is required (for nonradiological exposure hazards); excavation; high-consequence lifts; high explosives; or significant heat stress potential), Form 1692 (Attachment 1) is completed or reviewed by an FMU or HSR Division qualified person (Level 2);
- ensure that the work provider receives paper or electronic documentation of site hazards and controls for attachment to or inclusion with Form 1694, "Activity Hazard Analysis" (Attachment 2);
- ensure that the work provider has access to any documentation used to complete Form 1692 (Attachment 1), e.g., sampling reports; and
- designate personnel to perform oversight, as needed.

5.3 Authorized Persons and Facility Coordinators

Authorized persons shall

- be briefed in Laboratory work control processes, including hazard analysis and control;

- complete Form 1692, conferring with FMU qualified persons as needed to properly identify site hazards and controls; and
- assist FMU qualified persons in identifying additional site controls, as needed.

Note: It is the responsibility of the work provider to identify the task hazards and task controls.

5.4 Qualified Persons

All FMU qualified persons shall

- have ES&H knowledge relevant to the site hazards identified;
- identify additional site controls, as needed; and
- assist authorized persons in completing Form 1692, as needed.

All work provider qualified persons shall

- have ES&H knowledge relevant to the task hazards identified and
- perform hazard analysis and hazard control reviews of the AHA.

5.5 Health, Safety, and Radiation Protection Division Personnel

HSR Division personnel shall

- review ES&H plans and/or AHAs for construction and demolition, ER/D&D, and other workproviders performing facility work;
- spot-check the AHAs for construction and maintenance work performed by the SSS;
- conduct routine and formal assessments, inspections, and/or program reviews;
- review and approve courses in facility hazard analysis and control; and
- provide support to FMU authorized persons and FMU qualified (Levels 1 and 2) persons in completing the ES&H site hazard and control form and in identifying additional site controls.

5.6 Work Providers

The work provider shall

- involve workers in hazard identification and analysis associated with the work to be performed;
- attach the ES&H site hazard and control form(s), Form 1692, to AHA Form 1694 or incorporate the Form 1692 information in AHA Form 1694 (Note: Only Form 1692 is required for SOC work.) and ensure that the described controls are adequate to protect workers;
- designate qualified persons to complete a task hazard analysis for all facility work using Form 1694, except work designated as skill of craft (SOC), in accordance with LIR 230-03-02, “Maintenance Skill of Craft.” (If the work involves ER/D&D, the work provider shall provide a site-specific health and safety plan (SSHASP) in accordance with 29 Code of Federal Regulations (CFR) 1926.65 in lieu of Form 1694);
- ensure that when work involves high-loss-potential task hazards (e.g., multiple hazards; carcinogens, beryllium, or unknown chemicals; respirator use; excavations; high-consequence lifts; high explosives; or significant heat stress potential) the AHA is reviewed by a Level 2 qualified person;
- inform workers of site and task hazards, controls, permits, and training associated with the work during a walkdown of the site and/or a prejob briefing;
- provide an ES&H plan and/or AHA as required for construction and demolition work in accordance with LIR 402-10-03, “ES&H Management of Contractor-Performed Facility Construction/Maintenance Environmental Restoration/Decontamination and Decommissioning and Related Drilling Operations;”
- ensure review of the AHA and/or SSHASP by work provider or HSR Division qualified persons;
- ensure that supervisors/foremen and workers apply and implement hazard controls; and
- regularly oversee work activities to ensure compliance with the ES&H requirements of the work package.

Note: LANL ES&H Requirements for Work Providers, Attachment 3, provides helpful information for work providers.

5.7 Supervisors, Foremen, and Workers

Workers shall

- assist in identifying task and site hazards;
- become familiar with the site hazards and controls provided by the facility;
- review the hazards, controls, permits, and training requirements during a walkdown and/or prejob briefings;
- apply and use hazard controls; and
- stop work activities, as necessary, in accordance with Section 6.4 of this document.

6.0 Hazard Analysis and Control Requirements

The Laboratory hazard analysis and control process comprises the elements in Table 1.

6.1 ES&H Site Hazards and Control

The originator shall inform the authorized person of any known or suspected site hazards that could affect the task. Using a walkdown or other effective means, the authorized person shall complete Form 1692 (Attachment 1).

The authorized person shall, if needed, confer with FMU qualified persons to properly identify site hazards and controls. If additional controls are needed, Form 1692 shall be forwarded to an FMU qualified person. Using a walkdown or other effective means, the qualified person shall identify these controls on Form 1692 or on Form 1692-B, ES&H Site Hazards and Controls Continuation Form (Attachment 1). If the work involves high-loss-potential site hazards, a Level 2 qualified person shall identify the controls.

Site hazard controls shall be specific and shall be written so that the worker does not have to look at another document to identify the control. Controls identified for the listed hazard shall be reviewed to ensure that no new hazards are introduced when the control is implemented.

Form 1692 (and, if used, Form 1692-B) is

- for SSS work, processed in accordance with LIR 230-03-01, “Facility Management Work Control,” or
- for non-SSS work, processed in accordance with LIR 230-03-01, “Facility Management Work Control,” forwarded to BUS Division for bid solicitation, procurement and for inclusion in an AHA. The AHA is then processed in accordance with LIR 402-10.03, “ES&H Management of Contractor Performed Facility Construction/Maintenance, Environmental Restoration/Decontamination and Decommissioning, and Related Drilling Operations.”

Guidance Note: Form 1692 maybe used outside of the work control process to transmit information about site hazards and controls.

For emergency and urgent work as defined in LIR 230-03-01, “Facility Management Work Control,” the FM or designee, in conjunction with the work provider, shall ensure that the prejob briefing includes a discussion of all hazards and controls to ensure that workers are adequately informed and protected.

For repeated tasks performed by a work provider, completed site hazard analyses associated with these tasks are sufficient as long as the task, site hazards and controls, and the task itself, do not change. These analyses shall be reviewed and, if necessary, updated annually.

A “green building” is defined as having no laboratories or experiments, and having none of the following site hazards: ionizing radiation, NIR (including lasers), noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. Examples of green buildings include buildings or trailers that only contain offices. If a building is designated as

green, but the work involves working near energized and operative systems, on elevated work surfaces, in confined spaces, or an excavation, soil disturbance, or penetration, the green building designation cannot be applied to the work package.

The requirement to complete a Form 1692 for facility work is waived for green buildings, where the work does not involve working near energized and operative systems, on elevated work surfaces, in confined spaces, or an excavation, soil disturbance, or penetrations. This waiver only applies when the facility work does not involve watercourses, air emissions, waste streams, or NEPA issues. The waiver does not apply to construction.

The building must be designated as a green building in the CMMS task instructions (Panel M102). The statement "Green Building-no Form 1692 required" shall be entered above the description of the work requested. The list of green buildings within an FMU shall be documented and maintained by the FM or designee. The list shall be reviewed and updated annually or when changes occur.

6.2 Activity Hazard Analysis and Review

6.2.1 Completing the Activity Hazard Analysis

Using a walkdown or other effective means, the work provider shall complete a task hazard analysis using Form 1694 (Attachment 2).

> Note: Task hazard analysis is not required for SOC work as defined in LIR 230-03-02, "Maintenance Skill of Craft;" hazards and controls for SOC tasks are included in written hazard briefing documents. Site hazards and controls for SOC tasks are documented by the FM or designee and are included in the work package. The work provider shall review the written hazard briefing documents annually.

The completed AHA shall identify

- site hazards and site controls identified by the FMU authorized person and/or the FMU qualified person on Form 1692;
- any additional controls for site hazards needed to protect workers;
- principal work steps; and
- task hazards, controls, permits, and training associated with the work to be performed.

In developing the task hazard analysis, the work provider shall draw upon the knowledge and experience of workers who perform the activity. The site hazard analysis, documented on Form 1692, is attached to the task hazard analysis documented on Form 1694. If the work provider prefers, the task hazard and site hazard analyses can be combined in Form 1694. For construction or demolition work, the work provider shall also submit an ES&H Plan and/or AHA for review, unless one has been submitted and approved previously.

Repeated tasks such as preventive and corrective maintenance of equipment can be addressed by a task hazard analysis completed before the task is performed for the first time. This single analysis is sufficient as long as the task does not change. These analyses shall be reviewed and, if necessary, updated annually.

6.2.2 Reviewing the Activity Hazard Analysis

The AHA is reviewed

- for SSS work, by work provider qualified persons and,
- for non-SSS work, by HSR Division. The AHA is processed in accordance with LIR 230-03-01, "Facility Management Work Control," and is forwarded to BUS Division for bid solicitation, procurement, and for inclusion in an AHA. The form is then processed in accordance with LIR

402-10.03, "ES&H Management of Contractor Performed Facility Construction/Maintenance, Environmental Restoration/Decontamination and Decommissioning, and Related Drilling Operations."

An AHA review should address the following five elements.

6.2.2.1 Principal Work Steps

The principal work steps shall identify key steps in the work process that may expose workers to hazardous situations. If the work is conducted in phases (preoperational, operational, and postoperational), the principal work steps shall be organized in phases.

6.2.2.2 ES&H Hazards

The qualified person shall determine whether the task hazards for each step listed in the AHA have been identified.

Note: It is not necessary to address general (common) hazards such as lightning and snakes separately in the AHA; however, the work provider shall address these hazards separately at safety briefings at appropriate times and intervals. If general hazards exist and are addressed separately, a statement documenting that briefings have been completed shall appear on the AHA.

The qualified person shall ensure that each task hazard is addressed separately (e.g., "energized electrical systems" shall not be combined with "contact with sharp edges"), and when hazards are identified, that actions, or actions together with effects, are described rather than just effects (e.g., "contact with energized electrical system/electric shock" not just "electric shock").

6.2.2.3 Hazard Controls

Hazard controls shall

- be specific and written so that the worker does not have to look at another document to identify the control;
- map to a hazard and principal work step; and
- be stated simply, e.g., "Wear 1000-volt gloves."

Controls shall be implemented using the hierarchy of controls, i.e., elimination, substitution, engineering, administrative, and PPE (LPR 402-00-00, "Worker Health and Safety.") Controls identified for the listed hazard shall be reviewed to ensure that when controls are implemented no new hazards are introduced. The work provider qualified person shall also consider the consequences of failure of each control and whether

- the hazard can be eliminated rather than just controlled;
- the controls abate the hazard or mitigate it to a level at which the probability of injury or illness is negligible;
- any new technologies or equipment are available that may work better than the proposed controls;
- both technical and procedural controls have been considered;
- PPE is used only after all other control options have been considered; and
- emergency planning arrangements have been completed.

As part of the review, the qualified person must ensure that controls for site hazards adequately protect workers.

6.2.2.4 Permits

Applicable permits for hazards shall be stated.

6.2.2.5 Training

Applicable training for hazards shall be stated.

6.3 Hazard Analysis and Control, Walkdown, and Prejob Briefing

The work provider's supervisor or foreman shall ensure that all controls specified in the AHA have been put in place before work begins. Within one working day prior to commencing new work and as needed for repeated work, the work provider supervisor or foreman shall inform his/her workers of site and task hazards, controls, permits, and training requirements during a walkdown of the work site and/or at a prejob briefing.

6.4 Changes in Hazard Analysis and Control

Once activities have begun, any worker shall stop activities and notify the immediate supervisor or equivalent and FM or designee if

- any change in the scope of work occurs that might have a negative impact on worker health and safety and/or the environment,
- new ES&H hazards are identified,
- existing ES&H hazards cannot be controlled as stated in the AHA, and/or
- any change in work conditions occurs that might have a negative impact on worker health and safety and/or the environment.

Before restarting the activity, FMs or their designees and work provider personnel shall refer to the change control process in LIR 230-03-01, "Facility Management Work Control," Section 7.4.6, "Perform Work." If the activity was stopped as a result of a hazardous condition as defined in LIR 401-10-01, "Stop Work and Restart," (e.g., an imminent danger), the activity may restart upon authorization by the immediate supervisor or equivalent, in accordance with LIR 401-10-01, "Stop Work and Restart."

6.5 Oversight and Performance Assurance for Hazard Analysis and Control

The work provider shall oversee regular work activities to ensure compliance with the ES&H requirements of the work package. The FM or designee shall designate personnel to perform oversight functions in coordination with HSR Division, FWO Division, and work provider personnel, as needed. Any issues and/or deficiencies identified, e.g., lessons learned shall be documented.

Qualified persons designated by HSR Division shall conduct routine and formal performance assurance assessments and interact with FMU qualified persons to discuss issues and concerns identified as a result of these assessments.

7.0 References

7.1 Documents

"Facility Management Work Control," Los Alamos National Laboratory controlled document LIR 230-03-01.

"ES&H Management of Contractor Performed Facility Construction/Maintenance, Environmental Restoration/Decontamination and Decommissioning, and Related Drilling Operations," Los Alamos National Laboratory controlled document LIR 402-10-03.

"Stop Work and Restart," Los Alamos National Laboratory controlled document LIR 401-10-01.

"Electrical Safety," Los Alamos National Laboratory controlled document LIR 402-600-01.

7.2 Document Ownership

The Industrial Hygiene and Safety Group, HSR-5, is responsible for the contents of this document.

8.0 Attachments

Attachment 1: ES&H Site Hazard and Control Form (Form 1692) and ES&H Site Hazard and Control Continuation Form (Form 1692-B)
Attachment 2: Activity Hazard Analysis Form (Form 1694)
Attachment 3: LANL ES&H Requirements for Work Providers

ATTACHMENT 1
ES&H SITE HAZARD AND CONTROL FORM

Instructions: An authorized person designated by the FM is responsible for initial identification of environment, safety, and health (ES&H) site hazards associated with this work request. Identify hazards to which workers could be exposed at the work site by checking "yes" or "no" as appropriate. If "yes" is checked, identify the specific hazard in the blank space. Check any standard site controls. All questions must have a response.

WO No.	FMU	TA	Bldg.	Room	Other Location

Environmental Impacts: Does the work involve…	Check Yes or No	
Potential disturbance of a watercourse (river, creek, arroyo, canyon, draw, or wash) or water discharges?	__No	__Yes Contact RRES-WQH or designee.
Air emissions?	__No	__Yes Contact RRES-MAQ or designee.
Changes in existing waste streams or generation of hazardous waste?	__No	__Yes Contact RRES-SWRC or designee.
New construction projects; modified construction plans; new or modified programs or processes; ground clearing; use of off-road vehicles; outside activities resulting in increased light or noise; change in an outside footprint; decommissioning, decontamination, or demolition. (Routine maintenance as defined in NEPA B.1.3 does not require a NEPA review.)	__No	__Yes[a] ESH-ID No._____ OR Contact RRES-ECOL or designee.

Site Hazards	Hazard(s) present?	Check any standard site control(s)	Specify Existing or Additional Control(s)[b]
Ionizing Radiation Handling radioactive material, entering posted radiological areas, working near radiation-producing devices.	__Yes __No	__RWP __Posted area	
Worker Exposure Working near nonionizing radiation, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives.	__Yes __No	__Follow entry [c] posting.	
Energized and Operative Systems Working near energized electrical parts, unlisted or unapproved electrical equipment, or explosive materials; working near unprotected belts, pulleys, chains, or rotating equipment; fuel-fired equipment other than vehicles; or spark- or flame-producing operations.	__Yes __No	__Mitigation addressed by work provider. __Spark and flame permit.	
Elevated Work Surfaces Unprotected structures and work surfaces elevated by more than 6 feet?	__Yes __No	__Mitigation addressed by work provider.	
Confined Spaces Entry into tanks, manholes, cooling towers, sumps.	__Yes __No	__Mitigation addressed by work provider.	

__ **Indoor excavation** __ **Outdoor excavation** __ **Soil disturbance**	__Yes __No	HSR-3 contacted __Yes __ No If yes, an HSR-3 Excavation/Soil Disturbance Permit has been __ initiated, or __ assigned the following EX-ID number __ Mitigation addressed by work provider	
__ **Ceiling,** __ **Floor, or** __ **Wall penetration**. Description of penetration(s) (if not described in Task Description): __ Class 1 penetration (less than 1 ½ inches)[d] __ Class 2 penetration (greater than 1 ½ inches, formerly called complex penetration)	__Yes __No	__ LANL Penetration Permit (LIR 402-880-02, Attachment A) is attached (not required for Class 1 if AHA/HCP addresses hazards and controls). __ AHA/HCP	
Other (Describe)	__Yes __No		

Special Training, Escort, or Access Requirements (Describe) __HE Hazard Briefing
(Form continued on next page)

Authorized Person_____**Date**_____
Name (Print) Signature

Qualified Person (if required)_____**Date**_____
Name (Print) Signature

a. If yes is checked, the ESH-ID number must be filled in.
b. Qualified person only [Use continuation form (Form 1692) if necessary].
c. For work that does not involve direct exposure to chemicals. Occupants must clear immediate work area of chemicals.
d. **Penetration—**an opening made by drilling, cutting, or otherwise piercing a wall, ceiling, or floor. This does not include placement of thumbtacks, picture nails, or similar items in a hollow wall or ceiling that do not go beyond the thickness of the sheet rock.
Class 1 penetration—Any penetration that is made into hollow walls, hollow ceilings, or hollow floors, or a penetration into solid materials to a depth of 1 ½ inches or less.
Class 2 penetration—A penetration that is deeper than 1 ½ inches or is all the way through a solid material.

ATTACHMENT 1 (Continued)

ES&H SITE HAZARDS AND CONTROLS CONTINUATION FORM

Site Hazard	Site Control

Qualified Person

_____

Signature **Date**

ATTACHMENT 2
ACTIVITY HAZARD ANALYSIS FORM

Site Hazards ❑ Attached ❑ Incorporated

Work Request Number	**AHA Number** **Effective Date** **Expiration Date**	**Revision Number**	**Procedure Number** (Indicate if not applicable.)	**Procedure Title** (Indicate if not applicable.)

FMU	**TA**	**Building**	**Room**	**Other**

Description and Scope of Work (not required if work request number is provided above)	**Review and Approval** **(Signature blocks for supervisor/foreman and qualified person must be completed)**
	Supervisor/Foreman Date
	Qualified Person Date
	Other (as required by FMU)

Principal Work Steps Identify principal steps and sequence of work activities.	**ES&H Hazards** Task: Identify hazards in each principal step. Site: Identify site hazards that could affect workers.	**Hazard Controls** Determine specific controls for each hazard.	**Permits** List permit requirements; indicate if not applicable.	**Training** List training requirements.

Once work activities have begun, any worker must stop work activities if an imminent danger exists, any change in the scope of work occurs that could affect worker health and safety and/or environment, new ES&H hazards are identified, existing ES&H hazards cannot be controlled as stated in the AHA, and/or any change in work conditions occurs that potentially affects worker health and safety or the environment.

Form 1694 (3/99)

ATTACHMENT 2

ACTIVITY HAZARD ANALYSIS CONTINUATION FORM

Work Request Number	**AHA Number:** **Effective Date:** **Expiration Date:**	**Revision Number**	**Procedure Number** Indicate if not applicable.	**Procedure Title** Indicate if not applicable.
Principal Work Steps Identify principal steps and sequence of work activities.	**ES&H Hazards** Task: Analyze each principal step to identify hazards. Site: Identify site hazards that potentially affect the worker.	**Hazard Controls** Determine specific controls for each hazard.	**Permits** List permit requirements; indicate if not applicable.	**Training** List training requirements.

Form 1694 (continued) 3/99)

ATTACHMENT 3

LANL ES&H REQUIREMENTS FOR WORK PROVIDERS

If your work includes	Then LANL's requirements are	Comments
Excavations in which any ground-breaking or hand tools have been used.	Complete excavation review process.	FMU personnel shall assist in preparation. Processing time for permit is 1–2 weeks. Ground-penetrating radar (GPR) survey, if needed, may take longer.
Penetrations into walls, ceilings, roofs, etc.	Follow LANL penetration requirements.	Penetration permit must be used for complex penetrations. GPR survey, if needed, may take in excess of 2 weeks.
Energized electrical work.	Complete training and special electrical work permit, including justification.	LANL prohibits energized work unless there is a compelling reason as defined in LIR 402-600-01, "Electrical Safety."
Generation of air contaminants, such as dust, vapors, gases, fumes, or smoke; use of chemicals regulated by any regulatory agency; release of radionuclides; generation of emissions from combustion equipment; maintenance or modification of building exhaust systems; or D&D activities.	Consult with RRES-MAQ or FMU personnel.	Use decision tree in LIR 404-10-01. Requirements are provided under the Clean Air Act.
Use of any spark- or flame-producing equipment or activities, including welding and cutting, that presents a fire hazard.	Complete spark/flame permit.	FMU personnel will assist in preparation. Average processing time for permit is 1 day. LIR402-840-01 gives requirements.
Entry into confined spaces.	Consult with FMU, host division, or HSR-5.	None.
Entry into radiological areas.	Develop radiological work permit (RWP), complete LANL RAD I or II training, dosimetry.	RWPs may take 1–5 days to complete. RAD I and II are offered every Wednesday and Thursday, and test-out option is offered on Tuesday. Consult with site radiological control technicians for required Laboratory dosimetry.
Work on-site for 10 or more full or partial days within 1 year's time.	Attend general employee training (GET) or test out.	GET training and test-out options are offered every Tuesday.
Activities that may have adverse impacts on adjacent LANL operations, including, but not limited to, use of hazardous or noxious chemicals, noise, vibrations, dust.	Consult with FMU personnel to determine impact on operations and on work provider's work. May need to shut down operations and/or clear work area.	None.

ATTACHMENT 3

LANL ES&H REQUIREMENTS FOR WORK PROVIDERS
(Continued)

If your work includes	Then LANL's requirements are	Comments
A project cost of $25,000 (or greater) **or** a schedule equal to or exceeding 14 calendar days. (Note: Does not apply to SSS as defined in LIR 402-10-01.2.)	Develop and obtain approval of ES&H Plan and AHA.	The ES&H Plan and AHA must be submitted to HSR-5 for approval before work begins. Guidance is available from BUS-5 or HSR-5.
A project cost of less than $25,000; schedule less than 14 calendar days; no use of hazardous materials; no lead, asbestos work, or energized work (unless electrical work covered is by an approved an SEWP). (Note: Does not apply to SSS as defined in LIR 402-10-01.2.)	Develop and review AHA.	AHA(s) must be submitted to HSR-5 for approval before work can begin. (HSR-5 will forward to FMU qualified personnel for comments.) Guidance is available from BUS-5 or HSR-5.
Lifting or hoisting operations categorized as a high-consequence lift.	Develop and obtain approval of a lifting plan (procedure) to identify certified equipment, qualified personnel, and safe practices to be used.	Lifting plan (procedure) must be submitted to HSR-5 for approval before lift can occur. The AR 13-2 checklist to be followed in preparing the plan (procedure) is available from BUS-5 or HSR-5.
Exterior work during extreme wildland fire danger conditions.	Specific to conditions.	Request restrictions bulletin from Laboratory Fire Marshall (FWO-FIRE).
An exterior project site for which >5 acres of soil will be disturbed.	RRES-WQH-18 evaluation for NPDES stormwater plan and permit (SWPP).	Consultation with RRES-WQH. Development of SWPP plan will take 2-4 weeks; permit in less than 5 days.

Note: This document serves to transmit information to you regarding Laboratory health and safety requirements. It is not intended as a comprehensive listing of hazards or controls. When Laboratory training is one of the controls required, questions about whether a particular type of training you have taken or propose to take may be addressed to HSR-5.